STIC Search Report
EIC 3600

USPTO

STIC Database Tracking Number: 119799

To: Terry L Melius Location: PK5 5Y17 Art Unit : 3600 Tuesday, April 20, 2004 Case Serial Number: 09/974545	From: Karen Lehman Location: EIC 3600 PK5-Suite 804 Phone: 306-5783 karen.lehman@uspto.gov

Search Notes

Hands off automatic landing has been around for years. The military uses it for carrier landings and some runways are certified for this type of landing. The difficulty I had with this search is getting the level of detail that's needed.

I did find one article from 1978 which discusses a system which corrects itself without interference of the pilot.

I did find two articles post 9/11 that discuss controlling the plane from the ground.

Please let me know if you like the search refocused.

sira Search and Information Resources Administration

```
S11    812352   HIJACK? OR AIR()PIRAT? OR TERRORIST?
S12   2727160   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
               ? OR JET()LINER OR JETLINER?
S13      1615   (INCAPACIT? OR DISABLE? OR AILING OR ILLNESS OR ILL)(4N)(P-
               ILOT OR PILOTS)
S14      6581   PANIC()BUTTON?
S15         0   S PANICBUTTON?
S16    112204   S1(S)S11
S17        56   S16(9N)S9
S18        56   S17 AND (S14 OR S8 OR S9)
S19        30   S18 AND S12
S20        25   RD (unique items)
S21        13   S20 NOT PD=>20010911
?
```

t 24/3,k/all

24/3,K/1 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07735396 Supplier Number: 64528777 (USE FORMAT 7 FOR FULLTEXT)
New aviation safety technology on show in Alaska.
Airline Industry Information, pNA
August 24, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 239

... s situational awareness by putting the same weather, terrain and traffic information that air traffic **controllers** have **on** the **ground** , in the **cockpit** . This information is aimed to assist in lpreventing mid air-air collisions and **controlled** flight into terrain.
The FAA will also publish non-precision approach procedures and install the...

24/3,K/2 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

12554932 (USE FORMAT 7 OR 9 FOR FULLTEXT)
New aviation safety technology on show in Alaska
AIRLINE INDUSTRY INFORMATION
August 24, 2000
JOURNAL CODE: WAII LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 229

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... s situational awareness by putting the same weather, terrain and traffic information that air traffic **controllers** have **on** the **ground** , in the **cockpit** . This information is aimed to assist in **preventing** mid air-air collisions and **controlled** flight into terrain.
The FAA will also publish non-precision approach procedures and install the...

24/3,K/3 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

12503890 SUPPLIER NUMBER: 64528777 (USE FORMAT 7 OR 9 FOR FULL TEXT)
New aviation safety technology on show in Alaska.
Airline Industry Information, NA
August 24, 2000
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 253 LINE COUNT: 00024

... s situational awareness by putting the same weather, terrain and traffic information that air traffic **controllers** have **on** the **ground** , in the **cockpit** . This information is aimed to assist in **preventing** mid air-air collisions and **controlled** flight into terrain.
The FAA will also publish non-precision approach procedures and install the...

```
how files;ds
File   9:Business & Industry(R) Jul/1994-2004/Apr 16
         (c) 2004  The Gale Group
File  16:Gale Group PROMT(R) 1990-2004/Apr 19
         (c) 2004 The Gale Group
File  18:Gale Group F&S Index(R) 1988-2004/Apr 16
         (c) 2004 The Gale Group
File  20:Dialog Global Reporter 1997-2004/Apr 19
         (c) 2004 The Dialog Corp.
File  80:TGG Aerospace/Def.Mkts(R) 1986-2004/Apr 19
         (c) 2004 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2004/Apr 19
         (c)2004 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 180:Federal Register 1985-2004/Apr 19
         (c) 2004 format only The DIALOG Corp
File 264:DIALOG Defense Newsletters 1989-2004/Apr 16
         (c) 2004 The Dialog Corp.
File 388:PEDS: Defense Program Summaries 1999/May
         (c) 1999 Forecast Intl/DMS
File 481:DELPHES Eur Bus 95-2004/Apr W1
         (c) 2004 ACFCI & Chambre CommInd Paris
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
File 587:Jane`s Defense&Aerospace 2004/Apr W2
         (c) 2004 Jane`s Information Group
File 605:U.S. Newswire 1999-2004/Mar 18
         (c) 2004 U.S. Newswire via Comtex
File 621:Gale Group New Prod.Annou.(R) 1985-2004/Apr 16
         (c) 2004 The Gale Group
File 624:McGraw-Hill Publications 1985-2004/Apr 14
         (c) 2004 McGraw-Hill Co. Inc
File 635:Business Dateline(R) 1985-2004/Apr 17
         (c) 2004 ProQuest Info&Learning
File 636:Gale Group Newsletter DB(TM) 1987-2004/Apr 19
         (c) 2004 The Gale Group
File 660:Federal News Service 1991-2002/Jul 02
         (c) 2002 Federal News Service
File 665:U.S. Newswire 1995-1999/Apr 29
         (c) 1999 U.S. Newswire via Comtex

Set     Items   Description
S1   15010606   PREVENT? OR DETER? OR PROHIBIT? OR STOP? OR OVERRIDE? OR O-
             VER()RIDING OR OVER()RIDE? OR OVERRIDING OR LIMIT? OR DETER? -
             OR DEACTIVAT? OR BLOCK?
S2      22131   AUTO()PILOT? OR AUTOPILOT OR FLY(2W)WIRE OR F()B()W
S3      10380   (ONBOARD OR ON()BOARD)(3N)(CONTROL? OR PILOTING OR PILOTED
             OR FLYING)
S4    9716891   SENSOR? OR SENSING OR MONITOR? OR CONTROL?
S5      18765   MANUAL?(3N)(COMMAND? ? OR INSTRUCTION? OR ORDERS OR DIRECT-
             ?)
S6      28568   MANUAL?(3N)(CONTROL? OR MANIPULAT? OR FLY? OR GUIDE? ? OR -
             GUIDANCE OR GUIDING)
S7   10491132   RUDDER? OR POWER OR ENGINE? OR LANDING()GEAR? OR BRAKES OR
             REVERSE THRUST OR NOSEWHEEL OR STEERING
S8     191775   (REMOTE OR REMOTELY OR ON(2N)GROUND)(3N)(GUIDANCE OR CONTR-
             OL? OR INSTRUCT? OR CONTROL? OR DIRECT? OR PILOT?)
S9      70743   (FORCE? OR CONTROL? OR INDUCE? OR DIRECT?)(3N)(LANDING OR -
             LAND)
S10    964252   PILOT?
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S11    812352   HIJACK? OR AIR()PIRAT? OR TERRORIST?
S12   2727160   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
             ? OR JET()LINER OR JETLINER?
S13      1615   (INCAPACIT? OR DISABLE? OR AILING OR ILLNESS OR ILL)(4N)(P-
             ILOT OR PILOTS)
S14      6581   PANIC()BUTTON?
S15         0   S PANICBUTTON?
S16    112204   S1(S)S11
S17        56   S16(9N)S9
S18        56   S17 AND (S14 OR S8 OR S9)
S19        30   S18 AND S12
S20        25   RD (unique items)
S21        13   S20 NOT PD=>20010911
S22       399   S1(10N)COCKPIT(4N)(CONTROL?)
S23        14   S22(2S)S8
S24         6   S23 NOT PD=>20010911
?
```

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how files;ds
File   2:INSPEC 1969-2004/Apr W2
         (c) 2004 Institution of Electrical Engineers
File   8:Ei Compendex(R) 1970-2004/Apr W2
         (c) 2004 Elsevier Eng.  Info. Inc.
File   9:Business & Industry(R) Jul/1994-2004/Apr 19
         (c) 2004  The Gale Group
File  15:ABI/Inform(R) 1971-2004/Apr 17
         (c) 2004 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2004/Apr 20
         (c) 2004 The Gale Group
File  80:TGG Aerospace/Def.Mkts(R) 1986-2004/Apr 20
         (c) 2004 The Gale Group
File  96:FLUIDEX 1972-2004/Apr
         (c) 2004 Elsevier Science Ltd.
File 148:Gale Group Trade & Industry DB 1976-2004/Apr 20
         (c)2004 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 264:DIALOG Defense Newsletters 1989-2004/Apr 19
         (c) 2004 The Dialog Corp.
File 484:Periodical Abs Plustext 1986-2004/Apr W2
         (c) 2004 ProQuest
File 587:Jane`s Defense&Aerospace 2004/Apr W2
         (c) 2004 Jane`s Information Group
File 589:FI Defense Market Intelligence 2004/Apr 07
         (c) 2004 Forecast Intl/DMS
File 624:McGraw-Hill Publications 1985-2004/Apr 19
         (c) 2004 McGraw-Hill Co. Inc
File 631:Boston Globe 1980-2004/Apr 18
         (c) 2004 Boston Globe
File 636:Gale Group Newsletter DB(TM) 1987-2004/Apr 20
         (c) 2004 The Gale Group
File 647:CMP  Computer Fulltext 1988-2004/Apr W2
         (c) 2004 CMP Media, LLC
File 696:DIALOG Telecom. Newsletters 1995-2004/Apr 19
         (c) 2004 The Dialog Corp.
File 702:Miami Herald 1983-2004/Apr 18
         (c) 2004 The Miami Herald Publishing Co.
File 717:The Washington Times Jun 1989-2004/Apr 19
         (c) 2004 Washington Times
File 994:NewsRoom 2001
         (c) 2004 The Dialog Corporation
File 995:NewsRoom 2000
         (c) 2004 The Dialog Corporation

Set     Items   Description
S1         47   HANDS()OFF(4N)AUTOMAT?(4N)(LAND OR LANDING)
S2         24   RD (unique items)
S3         19   S2 NOT PD=>20010911
?
```

Many trucks, ships and trains have ways to use the system...
? t 3/7/all

3/7/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

4435444 INSPEC Abstract Number: B9308-6250G-014
Title: GPS autoland considerations
Author(s): Lopez, A.R.
Author Affiliation: ARL Associates Inc., Commack, NY, USA
Journal: IEEE Aerospace and Electronics Systems Magazine vol.8, no.4 p.37-40
Publication Date: April 1993 Country of Publication: USA
CODEN: IESMEA ISSN: 0885-8985
U.S. Copyright Clearance Center Code: 0885-8985/93/$3.00
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P); Experimental (X)
Abstract: It is pointed out that fully **automatic hands - off landing** (autoland) capability for commercial aircraft, using the Global Positioning System (GPS), has not been demonstrated, and that ground multipath errors limit vertical positioning accuracy. An evolving integrated-sensor-based architecture for approach and landing, called the tunnel concept, is examined. The precise velocity information available could substantially reduce the vertical accuracy requirement for autoland. (8 Refs)
Subfile: B

3/7/2 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

00455616 E.I. Monthly No: EI7506035539 E.I. Yearly No: EI75002703
Title: AN/SPN-42 AUTOMATIC CARRIER LANDING SYSTEM.
Author: Davies, W. D. T.; Noury, Roger
Corporate Source: Bell Aerosp Div of Textron, Buffalo, NY
Source: Adv Control Conf, 1st Annu, Proc, Prepr, Purdue Univ, Lafayette, Indiana, Apr 29-May 1 1974 p 99-110. Publ by Dun-Donnelley Publ Corp, Chicago, Ill, 1974
Publication Year: 1974
Language: ENGLISH
Journal Announcement: 7506
Abstract: This paper discusses the design of the digital, ship based automatic carrier landing system AN/SPN-42 developed by Bell Aerospace Co. for the U. S. Navy. The system enables " **hands off** " , all **automatic** , all weather **landing** of carrier based aircraft to be performed as a matter of course. The basic problems encountered are discussed together with the solution developed to overcome them. The control hardware and software arrangement as well as the basic design procedure are presented. Bell Aerospace Company's solution to this automatic control problem is a truly direct digital nonlinear control system called the ACLS, which operates as a closed-loop system exercising positive control of the aircraft from acquisition to touchdown. The major elements of the primary ACLS component are a precision tracking radar (i. e. , the " output sensor "), a stable platform, and a general purpose computer with associated input and output buffers (i. e. , the " controller "). 2 refs.

3/7/3 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

1057763 Supplier Number: 01057763 (THIS IS THE FULLTEXT)

FAA Project Bidders Take Flight

(Federal Aviation Administration projects in 1995 could total over $750 mil)

Electronic Buyers News, n 924, p 36
October 03, 1994
WORD COUNT: 591

TEXT:
By Jack Robertson

WASHINGTON -- The recent Air Traffic Control Association exhibition highlighted a bevy of Federal Aviation Administration projects that in the next year could total more than $750 million. They include Starts terminal airport control, oceanic air control, and the Wide Area Augmentation System (WAAS) using the Global Positioning System.

Bids coming out in another few years included the Airport Surface Traffic Automation system for tracking aircraft as they taxi, and Automated Enroute Reporting Air Traffic Control for upgraded management of aircraft routing. WAAS enables aircraft equipped with GPS receivers to report their precise locations to within a few feet based on satellite data. Each aircraft's control centers to improve the accuracy of their radar tracking reports.

Previously, FAA ground controllers had resisted moving ahead with a GPS augmentation program, because, sources said, they were hesitant to give greater flight path autonomy to aircraft. WAAS still gives ground controllers complete authority over air space, but GPS receivers permit other autonomous operations, such as inidividual aircraft collision avoidance control. Eventually, GPS receivers will provide **hands - off** , fully **automated landing** , without the need for FAA-mandated instrument landing systems.

The initial proposals for the WAAS program were submitted at the end of last month. Submissions came from GTE Government Systems; Raytheon; Harris; Rockwell International; Loral Federal Systems; and a Wilcox Electric/Hughes/TRW team.

Bids are due this month for the oceanic air control system, which will relay GPS data on aircraft in transoceanic flights to continental centers. Older IBM mainframe computers would be replaced with a distributive processing network of server and Unix-based workstations.
Oceanic system bidders include teams from Computer Sciences and Unisys; Hughes and BDM International; Harris and CAE; there is also a team headed by Raytheon.

The largest upcoming FAA bid--expected to total nearly half-a-billion dollars over its program life--is the Stars airport terminal Air Traffic Control (ATC) upgrade. Airport control originally was part of the U.S. Advanced Automation System (AAS) program that envisioned a consolidated national ATC network of en route and major airport terminal control. That proved more complex than envisioned, and early this year the FAA elected to break out the terminal portion as a separate bid.

The only team so far that has announced its intention to bid the terminal control program is the Hughes/BDM International team. Initially, the team is expected to propose Sun workstations, which were used by BDM in a fast-deployment air traffic system for tracking drug-smuggling planes out of Colombia. Since the ATC software is portable to other Unix-bases

workstations, the team could propose Hewlett-Packard workstations that Hughes is using in a Canadian air traffic control network.

Other companies have said they will bid the terminal airport Stars program, and are looking for team members now. The list includes Unisys, Loral Federal Systems Division, Raytheon, and SGS Thomson. For processing the terminal ATC data, Unisys is expected to propose a version of its Motorola 68040-based distributive client-servers now used in several upgraded terminals it has already installed for the FAA, including the consolidated New York area center.

Exhibitors at the ATC show were also trying to spark FAA interest in proto-type systems. Unisys was touting an augmented aircraft Mode S data link that would transmit a plane's GPS data to an airport terminal for precision landing control. The system would use a stationary antenna ground station built by Siemen's Cardion Electronics Division to receive GPS data at intervals of 1 second, which is five times faster than conventional airport terminal radars. Such rapid updating is critical for landing and taxi control on runways.

3/7/4 (Item 1 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

07956368 Supplier Number: 66449847 (THIS IS THE FULLTEXT)

TUAV Expected To Complete Contractor Testing Today. (Brief Article)

Drone

Defense Daily, v208, n19, pNA
Oct 27, 2000

TEXT:

By Marc Strass

AAI's (UIC) Shadow 200 Tactical Unmanned Aerial Vehicle (TUAV) is expected to complete contractor trials today and begin moving to Ft. Huachuca, Ariz., for the program's next phase, according to a company official.

"We are ready to move to Ft. Huachuca (tomorrow)," the official said. "We have two weeks after that to get set up to begin flights, but we think that we can do better than that."

AAI is currently winding up the integration of the Sierra Nevada Corp. Tactical Automatic Landing System (TALS) into the TUAV system at the Army's Aberdeen Proving Ground, Md.

"This is our last requirement," the official said. "Last week, we did a few touch-and-go's before we did the first **automatic landing** , but it all worked."

TALS enables **hands - off auto**matic landing of TUAVs, making them easier to deploy.

The next phase of testing at Ft. Huachuca will concentrate on "wringing out the whole system" before the start of service pilot training in December and the arrival of the first Block I TUAV system.

"That Block I system will essentially be a full-up production unit with all the components," the official said. "There will be just a few minor articles missing from the first Block I system, and we will take care of them pretty quickly."

The trials will be conducted by AAI personnel on so-called Block 0 test aircraft, but will be under the control of the Army.

3/7/5 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07868090 Supplier Number: 65700361 (THIS IS THE FULLTEXT)
TUAV Crashes At Aberdeen.(Brief Article)
Defense Daily, v208, n1, pNA
Oct 2, 2000
TEXT:
By Marc Strass

The Army's TUAV program suffered a minor setback last week when one of AAI's (UIC) Shadow 200 Tactical Unmanned Aerial Vehicles (TUAV) crashed during flight trials at the Army's Aberdeen Proving Ground, Md., a company official said.

"We are going to work through the weekend to try and determine what happened," an AAI official told Defense Daily in a telephone interview on Friday. "The crash is not going to delay the program at all, since we have another air vehicle available to complete testing of the TALS (Tactical **Automatic** **Landing** System) system."

The Sierra Nevada Corp. TALS enables **hands - off** **automatic** **landing** of TUAVs, making it easier to deploy.

Automatic landing using the TALS system is to start this week.

According to the official, the UAV crashed while attempting a landing under manual control. It was the last flight before AAI used the TALS systems for landing.

"As (the UAV) was turning to make its final approach, the vehicle entered an uncontrollable spin, we attempted to deploy the (emergency) parachute but there wasn't enough altitude to slow it down, and it landed hard," the official said. "We were fortunate that there was no payload aboard."

Damage to the air vehicle and its electronics was minor, and the UAV will be repaired and eventually returned to flight.

3/7/6 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07742644 Supplier Number: 64699393 (THIS IS THE FULLTEXT)
AAI Begins Integration of Key Components Into Army TUAV.(Brief Article)
Defense Daily, v207, n39, pNA
August 25, 2000
TEXT:

AAI will soon complete integration of two critical components into its Shadow 200 Tactical Unmanned Aerial Vehicle (TUAV), according to a company official.

The TUAV will eventually become the Army's brigade level UAV system. The initial operational version of the TUAV of the aircraft, also known as Block I, will be deployed in April at Ft. Hood, Texas.

Block I TUAVs, which will only be used for short-range aerial reconnaissance, will be fitted with an Israel Aircraft Industries POP 200 electro-optical/infrared (EO/IR) camera payload. Integration of that starts next week.

Also, AAI is expected to conduct the first flight test of the Sierra Nevada Corporation Tactical Automatic Landing System (TALS) on Monday.

Integration of TALS, which is a lower cost version of Sierra's UAV Common Automatic Recovery System currently deployed in Navy Pioneer UAVs, started earlier this week (Defense Daily, May 11).

The incorporation of TALS into the Shadow 200 represents one of the

more important parts of AAI's system integration effort. TALS will enable **hands - off automatic landing** of TUAVs, making it easier to deploy and reducing manpower requirements.

"TALS will reduce the Army's reliance on hard to come by and expensive to train personnel," Steve Reid, AAI's TUAV program director, told Defense Daily yesterday in a telephone interview.

Integration of these two systems into the TUAV will bring the Shadow 200 up to its initial Block I operational standard, from the Block 0 configuration that is being used for flight testing at the Army's Aberdeen Proving Ground, Md.

AAI will continue to conduct testing at Aberdeen in preparation for turning over the first Block I TUAVs to the Army in October at Ft. Huachuca, Ariz. The Army will conduct its own testing and evaluation of the TUAV before activating the first TUAV unit.

Meanwhile, the Army and AAI are completing the Block II objective TUAV design.

The Army plans to carry at least three payloads aboard the Block II TUAV: an EO/IR payload, a communications relay payload and a synthetic aperture radar payload.

However, any payload planned for the Block II TUAV will have to be a maximum of 60 pounds in weight and one cubic foot in size. That is 40 pounds under the initial objective payload requirement but only a few pounds over the Block I payload weight.

To accommodate these payloads, the external dimensions of the Block II, TUAV will also grow several inches larger in fuselage width and height. Length, however, will remain unchanged because of transport size restrictions (Defense Daily, June 9).

3/7/7 (Item 4 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04614079 Supplier Number: 46787358 (THIS IS THE FULLTEXT)
Unwanted demands
Flight International, p26
Oct 9, 1996
TEXT:
DAVID LEARMOUNT/LONDON

HIGHLY AUTOMATED aircraft with digital flight-management systems (FMS) often surprise pilots and sometimes leave them dangerously confused. This is the basic conclusion of the US Federal Aviation Administration from its two-year review of modern airline flightdecks.

Yet the FAA does not seem able to find a single solution. The problem is immensely complex, it says, indicating a need for the whole aviation 'system' to recognise the importance of human factors (HF) in the modern flightdeck.

HF is not so much undervalued as misunderstood, the review concludes. What constitutes good HF for pilots in a highly automated environment has not been fully understood, probably because automation at its current level is such a new phenomenon that many of its effects could not have been foreseen. More study and some rethinking, the FAA hopes, will lead to changes in the way in which the industry designs the cockpits for highly automated aircraft, and the way it trains pilots for them.

Complicating the matter further, observes the FAA, is the fact that the system has an inherent resistance to the type of change needed. The FAA says in its review that the HF team which carried out the review recognises '... the economic pressures that inhibit making changes that may increase safety when there is not a strong tie to an accident. However, we believe

CRITERIA, REGULATORY STANDARDS, METHODS AND TOOLS FOR DESIGN AND CERTIFICATION

* Flightdeck design should be evaluated during certification for susceptibility to design-induced error;
* autopilot regulatory standards should be updated;
* standards for cockpit information- and warnings-display should be reviewed.

KNOWLEDGE AND SKILLS OF DESIGNERS, PILOTS, OPERATORS, REGULATORS AND RESEARCHERS

* "Make human-factors engineering a core discipline of the flightdeck design activity";
* pilot-training methods/programmes should be reviewed for validity in the light of modern flying/flightdeck demands;
* FAA regulators, inspectors and researchers should be better-trained in human-factors design and operational requirements.

CULTURAL AND LANGUAGE DIFFERENCES

* Research is needed to identify if culture and language have an influence on flight-deck safety;
* all uses of language, whether in spoken air-traffic-control English or in training, manuals, procedures and flightdeck nomenclature should be simple, standardised and sympathetic to the needs of those for whom English is not a first language.

3/7/11 (Item 1 from file: 160)

00255076

Final testing of the Automatic Carrier Landing System (ACLS) for a new US Navy aircraft carrier is being conducted by the Bell Aerospace Div of Textron Inc.

Instrumentation Technology May, 1972 p. 5

ACLS allows pilots to **land ' hands off ' automatically** and safely despite restrictions caused by darkness and weather. The system will be installed abroad the Dwight D Eisenhower, which is under construction at Newport News, Va.

3/7/12 (Item 1 from file: 484)

04741638 SUPPLIER NUMBER: 53593071 (THIS IS THE FULLTEXT)

Naval simulation tests carrier landing skills

Silbergeld, David L L

National Defense (FNDF), v84 n558, p40, p.1
May 2000

TEXT:

Jane's F/A-18 is a naval aviation simulation that models every aspect of the F/A-18E/F Super Hornet with, unbelievably, 180 joystick commands.

It allows the user, for example, to adjust the joystick response to include yaw, pitch and roll. For the hard-core players who choose to ignore the wonderful opportunities that a joystick offers, read that last thought as mouse and keyboard commands. Don't even attempt to use the mouse/keyboard only mode. It is too distracting, time consuming, and complex. Do it the real way, and use the joystick, preferably one with feedback capability for realism.

Whatever way you choose to fly the simulation, as pilot-in-command, it

nearly eight years ago.

The shuttle has, however, returned to the strip after each of its first nine flights -- after being ferried across the country atop a 747 jumbo jet from the West Coast.

Weather permitting, the next shuttle landing in Florida is expected to take place sometime in mid-April.

Despite the successful inauguration of the Florida landing strip, the space agency said there will still be occasional landings at Edwards Air Force Base in California.

Edwards, for instance, will be the preferred site later this year for a planned " **hands - off** " **landing** on **automatic** pilot.

The Edwards runways are considered more desirable for any first-time landing techniques, not only because they offer a variety of different approach opportunities, but because their emergency overruns extend for several miles beyond the end of the runway itself.

CAPTION:
PHOTO

Robert Gibson with Paul and Ronald McNair with Reginald and Vance Brand with Erik

3/7/19 (Item 1 from file: 717)
DIALOG(R)File 717:The Washington Times

07664068
Satellite system close to guiding airlines to cheaper, saferflights
Washington Times (WT) - Monday, June 13, 1994
By: David Field - THE WASHINGTON TIMES
Edition: Final Section: NATION UPDATE ON THE NEWS Page: A8
Word Count: 524

TEXT:
The government's ambitious plan to use satellites to improve navigation for the nation's airlines is getting down to earth.

The Global Positioning System, as the collection of 24 satellites, receivers, monitors and other gear is called, can offer information so precise that a truck company dispatcher can locate the line's trucks to an accuracy within yards. Vessels from seagoing tankers to small motorboats can also use it.

Using satellites lofted 11,000 miles up by Defense Department rockets, the GPS has been adopted for civilian uses; cheap, hand-held instruments even let hikers locate their positions with great accuracy.

Although U.S. aviation authorities have talked about the marvels of the system since 1989, it can be used by only a few planes at specially equipped airports, such as the Federal Aviation Administration test plane the agency used last year to wow journalists with an **automated** approach down the Potomac River capped by a **hands - off landing** at Washington National Airport.

Many trucks, ships and trains have ways to use the system, and in December it was declared operational for aircraft in flight and in clear-weather landings provided other navigational aids were available as

backups.

The FAA says the GPS will be ready for big-time takeoffs by the middle of 1997. The agency last week announced a plan to spend as much as $500 million to build 24 ground stations around the nation to ensure that the satellites give the correct location of a plane. This Wide Area Augmentation System will make the GPS dependable enough to route planes into airports even in the worst fog, in snow and at night.

"The question no longer is does it work, but how quickly we can get it installed. . . . We're no longer studying. We're going to start building," FAA Administrator David R. Hinson said.

The ground station system - in which position signals will go to a central station to be sent by the satellites to airplanes equipped with GPS receivers - will start guiding airplanes before the end of 1997 and be completed in six years, he said.

The combined system will make every runway at every one of the 1,700 U.S. airports, even airports without control towers, capable of handling instrument landings.

"It's phenomenal," Mr. Hinson said. "Once in a while those of us in a specific science are privileged to be around when something is introduced that is truly revolutionary."

Mr. Hinson said the ground stations will be worth the cost. During the six years it is expected to take to complete the system, the GPS could save $2 billion or more in airline costs by saving fuel, preventing flight diversions, finding more direct routes and so forth, he said. A Continental Airlines unit, Continental Express, has used the system experimentally in flights between Aspen and Steamboat Springs, Colo., since the fall and has recovered its investment.

The major airlines welcomed the FAA's news through their trade group, the Air Transport Association. The GPS "will produce significant savings for the airlines and air travelers by reducing delays and fuel consumption, and it will enhance safety," lobby President Jim Landry said.

M0065043-061394

?

```
? show files;ds;log
File  15:ABI/Inform(R) 1971-2004/Apr 17
         (c) 2004 ProQuest Info&Learning
File 484:Periodical Abs Plustext 1986-2004/Apr W2
         (c) 2004 ProQuest
File 624:McGraw-Hill Publications 1985-2004/Apr 19
         (c) 2004 McGraw-Hill Co. Inc
File 994:NewsRoom 2001
         (c) 2004 The Dialog Corporation

Set     Items   Description
S1          8   HANDS()OFF(4N)AUTOMAT?(4N)(LAND OR LANDING)
S2          7   RD (unique items)
```

2/3,K/1 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)

02239129 84944925
It's Not Simple To Turn Airliners Into UAVs
Nordwall, Bruce D
Aviation Week & Space Technology v155n16 PP: 69 October 15, 2001
ISSN: 0005-2175 JRNL CODE: AWS

...ABSTRACT: to a preprogrammed autopilot. The aircraft's Flight Management System would guide it to an **automatic** , **hands - off** **landing** at the closest airport on a preselected list. In another scheme, the plane could be...

2/3,K/2 (Item 1 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext

06284496 SUPPLIER NUMBER: 486716541 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Europe launches wave of airborne robots
Kenyon, Henry S
Signal (FSIG), v58 n3, p65-68
Nov 2003
ISSN: 0037-4938 JOURNAL CODE: FSIG
DOCUMENT TYPE: Feature
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2019

TEXT:
... of the Eagle's critical systems are redundant, including split control surfaces. It features an **automated** takeoff and **landing** system designed for **hands - off** operation. This capability permits a fully **automated** mission. Since no pilots are required for the beginning or end of an operation, the...

2/3,K/3 (Item 2 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext

04741638 SUPPLIER NUMBER: 53593071 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Naval simulation tests carrier landing skills
Silbergeld, David L L
National Defense (FNDF), v84 n558, p40, p.1
May 2000
ISSN: 0092-1491 JOURNAL CODE: FNDF
DOCUMENT TYPE: Product Review-Favorable
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 733

TEXT:
... tip to the wise: During carrier landings, it is safer to rely on the ACLS (**automatic** carrier **landing** system) for a **hands - off** **landing** . Among the many missions in your flight program, the most challenging will be becoming qualified...

2/3,K/4 (Item 3 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext

04741637 SUPPLIER NUMBER: 53593070 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Relocation made easy on the Web
Kutner, Joshua A
National Defense (FNDF), v84 n558, p39, p.2
May 2000
ISSN: 0092-1491 JOURNAL CODE: FNDF
DOCUMENT TYPE: Commentary
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 1540

TEXT:
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2/3,K/5 (Item 1 from file: 624)
DIALOG(R)File 624:McGraw-Hill Publications

01199975
It's Not Simple To Turn Airliners Into UAVs
Aviation Week & Space Technology October 15, 2001; Pg 69; Vol. 155, No. 16
Journal Code: AW ISSN: 0005-2175
Section Heading: AIR TRANSPORT
Dateline: Washington
Word Count: 662 *Full text available in Formats 5, 7 and 9*

BYLINE:
Bruce D. Nordwall

TEXT:
...a preprogrammed autopilot. The aircraft's Flight Management System (FMS) would guide it to an **automatic , hands - off landing** at the closest airport on a preselected list. In another scheme, the plane could be...

... flight is the skilled pilot with his finger near the autopilot-disconnect button.

For a **hands - off , automatic landing** , the aircraft, runway and crew must be certified. Even though the necessary equipment is installed ...

2/3,K/6 (Item 2 from file: 624)
DIALOG(R)File 624:McGraw-Hill Publications

0177576
Human Factors Are Critical In Computer-Driven Systems
Aviation Week & Space Technology December 18, 1989; Pg 104; Vol. 131, No. 25
Journal Code: AW ISSN: 0005-2175
Section Heading: Aerospace Perspectives
Dateline: BOSTON
Word Count: 1,344 *Full text available in Formats 5, 7 and 9*

BYLINE:
DAVID HUGHES

TEXT:
... writes drives the 2-3 computers that are checking each other to make certain the " **hands off** " Category 3A **automa**tic landing is a safe one.

This is just one of the many examples of how computers...

2/3,K/7 (Item 1 from file: 994)
DIALOG(R)File 994:NewsRoom 2001

0338545954 15M51EW1
It's Not Simple To Turn Airliners Into UAVs
Bruce D. Nordwall
Aviation Week & Space Technology, v155, No. 16, p69
Monday, October 15, 2001
JOURNAL CODE: AGNV LANGUAGE: ENGLISH RECORD TYPE: Fulltext
DOCUMENT TYPE: Trade Journal SECTION HEADING: AIR TRANSPORT ISSN: 0005-2175
WORD COUNT: 667

...a preprogrammed autopilot. The aircraft's Flight Management System (FMS) would guide it to an **automatic , hands - off landing** at the closest airport on a preselected list. In another scheme, the plane could be...

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t 2/3,k/all

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DIALOG(R)File 15:ABI/Inform(R)

02239129 84944925
It's Not Simple To Turn Airliners Into UAVs
Nordwall, Bruce D
Aviation Week & Space Technology v155n16 PP: 69 October 15, 2001
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Signal (FSIG), v58 n3, p65-68
Nov 2003
ISSN: 0037-4938 JOURNAL CODE: FSIG
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DIALOG(R)File 484:Periodical Abs Plustext

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Relocation made easy on the Web
Kutner, Joshua A
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DIALOG(R)File 624:McGraw-Hill Publications

01199975
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Journal Code: AW ISSN: 0005-2175
Section Heading: AIR TRANSPORT
Dateline: Washington
Word Count: 662 *Full text available in Formats 5, 7 and 9*

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Aviation Week & Space Technology December 18, 1989; Pg 104; Vol. 131, No. 25
Journal Code: AW ISSN: 0005-2175
Section Heading: Aerospace Perspectives
Dateline: BOSTON

Word Count: 1,344 *Full text available in Formats 5, 7 and 9*

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2/3,K/7 (Item 1 from file: 994)
DIALOG(R)File 994:NewsRoom 2001

0338545954 15M51EW1
It's Not Simple To Turn Airliners Into UAVs
Bruce D. Nordwall
Aviation Week & Space Technology, v155, No. 16, p69
Monday, October 15, 2001
JOURNAL CODE: AGNV LANGUAGE: ENGLISH RECORD TYPE: Fulltext
DOCUMENT TYPE: Trade Journal SECTION HEADING: AIR TRANSPORT ISSN: 0005-2175
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? show files;ds;log

MAIL-IT REQUESTED: APRIL 20, 2004 100J1V

CLIENT: TM
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NUMBER OF STORIES FOUND WITH YOUR REQUEST THROUGH:
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LEVEL 1 PRINTED

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MULTIPLE DOCUMENTS ON A PAGE

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PATENT & TRADEMARK OFFICE
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ARLINGTON VIRGINIA 22202-3503

**********************************08467**********************************

LEVEL 1 - 1 OF 24 STORIES

PR Newswire

November 1, 2000, Wednesday

SECTION: FINANCIAL NEWS

DISTRIBUTION: TO BUSINESS AND TECHNOLOGY EDITORS

LENGTH: 854 words

HEADLINE: AAI's Shadow 200 TUAV System Scores First Successful Automatic Landings

DATELINE: ABERDEEN, Md., Nov. 1

BODY:

... TUAV Automatic Landing System (TALS).

The initial TALS landings took place on Sunday, Oct. 22, during a 1.8-hour flight test at the Philips Army Airfield at Aberdeen Proving Ground. TALS enables **hands-off automatic landings** of the Shadow 200 air vehicles, eliminating the need for an external **pilot.**

The first in a new generation of tactical UAV systems, the Shadow 200 TUAV system is being developed to provide battlefield and peacekeeping mission intelligence for U.S. Army brigade commanders. Crucial reconnaissance, surveillance, and battlefield damage intelligence ...

LEVEL 1 - 2 OF 24 STORIES

DEFENSE DAILY

October 27, 2000

SECTION: Vol. 208, No. 19

LENGTH: 249 words

HEADLINE: TUAV Expected To Complete Contractor Testing Today

BODY:

... up the integration of the Sierra Nevada Corp. Tactical Automatic Landing System (TALS) into the TUAV system at the Army's

Aberdeen Proving Ground, Md.

"This is our last requirement," the official said. "Last week, we did a few touch-and-go's before we did the first **automatic landing,** but it all worked."

TALS enables **hands-off automatic landing** of TUAVs, making them easier to deploy.

The next phase of testing at Ft. Huachuca will concentrate on "wringing out the whole system" before the start of service **pilot** training in December and the arrival of the first Block I TUAV system.

"That Block I system will essentially be a full-up production unit with all the components," the official said. "There will be just a few minor articles missing from the ...

LEVEL 1 - 3 OF 24 STORIES

The Houston Chronicle

August 25, 2000, Friday 3 STAR EDITION

SECTION: A; Pg. 24

LENGTH: 591 words

HEADLINE: Investigators gather to dissect last moments of doomed Airbus

SOURCE: Houston Chronicle News Service

BODY:

... area was good as the plane began descending toward Runway 12, a southwest-northeast strip equipped with radio navigation devices that would have allowed the crew to land on instruments even if the weather had been poor.

The A320 also has the latest navigation equipment, including an **automatic landing** system that presumably would have allowed the **pilots** to perform a **hands-off** touch down if they chose.

The sources said that on its first approach to the airport the plane was too high to land, and that on its second approach it was too far off the runway centerline. As the jetliner circled over the gulf to make a third attempt, it disappeared from ...

LEVEL 1 - 5 OF 24 STORIES

St. Petersburg Times (Florida)

August 25, 2000, Friday, 0 South Pinellas Edition

SECTION: NATIONAL; Pg. 11A

LENGTH: 761 words

HEADLINE: Jet **pilot's** approach mystifies officials

BODY:

... area was good as the plane began descending toward Runway 12, a southwest-northeast strip equipped with radio navigation devices that would have allowed the crew to land on instruments even if the weather had been poor. The A320 also has the latest navigation equipment, including an **automatic landing** system that presumably would have allowed the **pilots** to perform a **hands-off** touchdown if they chose.

The Post reported that on its first approach to the airport the plane was too high to land and that on its second approach it was too far off the runway centerline. As the jetliner circled over the gulf to make a third attempt, it disappeared from radar ...

... air crash to find a significant number of bodies that can be identified from facial features.

Under the best of circumstances, a water landing is risky, said Michael Barr, director of the aviation program at the University of Southern California. Even a **pilot** coming in relatively slowly onto the water, hoping to skip across its surface, could clip a wing and lose control, he said. And the depth of the water would make little difference to the landing, experts said: A large plane that crashes at high speed is ...

... either had arrived or were on the way.

The A320 was the first commercial "fly-by-wire" airplane, meaning that it is controlled through electrical wiring rather than control cables. Using a fighter plane-style sidestick rather than a control wheel, the **pilot** sends commands to computers that tell the plane how to do what he has commanded.

Airbus also programmed "envelope" protection into the plane, meaning that the **pilot** cannot force it to make violent or stressful maneuvers. For instance, even by pulling back hard on the control stick, a **pilot** cannot force the plane to climb so steeply that it would stall; the plane's computers take over and limit the angle of climb no matter what the **pilot** does. The computer will even note when the plane is slowing to a speed that could cause it to stall and will rev up the engines to gain speed.

researchers

* "Make human-factors engineering a core discipline of the flightdeck design activity";

* **pilot** -training methods/programmes should be reviewed for validity in the light of modern flying/flightdeck demands;

* FAA regulators, inspectors and researchers should be better-trained in human-factors design and operational requirements.

Cultural and language differences

* Research is needed to identify if ...

SUBJECT: Air safety; Autopilots; Flight management systems; Commercial aircraft; **Pilots;** Research; Product use; Technology; Safety; Quality

LEVEL 1 - 11 OF 24 STORIES

The Washington Times

August 4, 1995, Friday, Final Edition

SECTION: Part B; BUSINESS; Pg. B7

LENGTH: 491 words

HEADLINE: Satellite airline navigation advances

BYLINE: David Field; THE WASHINGTON TIMES

BODY:

... location and so be able to land at almost any airport in almost any weather.

Many major airports will also have their own radio transmitters that will augment WAAS even more, eventually permitting specially equipped planes to make **automatic landings with the pilot's hands off** the stick. FAA test planes and those of United Airlines have already proven that "hands-off" landings are possible.

LEVEL 1 - 12 OF 24 STORIES

Aviation Week & Space Technology

October 4, 1993

SECTION: AIR TRANSPORT; Vol. 139, No. 14; Pg. 37

LENGTH: 289 words

HEADLINE: D-GPS-EQUIPPED 737 COMPLETES LANGLEY TESTS

DATELINE: WASHINGTON

BODY:

A total of 31 '' **hands-off'' automatic landings** using only differential global positioning system (D-GPS) for guidance recently were completed by a NASA Langley Research Center 737, outfitted with an autoland system developed by Wilcox Electric. The tests were conducted at ...

... Hundley said.

During the recent autoland tests at Wallops, NASA used a ground-based laser tracker to measure aircraft position during the final approach. Processing the laser tracking data will take several weeks. However, NASA **pilots** commented favorably on the smoothness of the approaches and landings, according to Stephen Rowson, a Wilcox technology specialist who participated in the tests.

LEVEL 1 - 13 OF 24 STORIES

The Washington Times

September 23, 1993, Thursday, Final Edition

SECTION: Part B; BUSINESS; Pg. B7

LENGTH: 1053 words

HEADLINE: **Pilot's** eyes in space ;
Satellite system helps planes find route to runway

BYLINE: David Field; THE WASHINGTON TIMES

BODY:

They call it the "look, Ma, no hands" approach to landing an airplane.

For the **pilots** of the jet snaking its way through the twisting landing approach to Washington National Airport over the Potomac River from Cabin John, and for U.S. commercial aviation, a global positioning system (GPS) using signals from satellites offers a truly automated landing.

The Potomac River approach is a demanding one, forcing **pilots** to nudge their planes along the river's imaginary center line.

But on a recent flight, using guidance from satellites 11,000 miles out in space and aided by signals from a ground radio, the **pilots** calmly watched the plane's control stick respond to the commands of its autopilot.

... plane to within about 300 feet of a landing site, but many in the aviation world questioned whether the satellite technology was precise enough to replace other systems under development.

The 300,000-member, Frederick, Md.-based Aircraft Owners and **Pilots** Association, a longtime backer of satellite-based navigation, wants the GPS to be refined enough to offer landings in poor weather and low visibility.

A way already exists to augment the brand-new GPS: With a simple radio transmitter, ...

... most favorable routes, reducing flight time and fuel costs and allowing greater use of planes.

"The [GPS signal] beam curves. That's the magic, the genius of it," Mr. Hinson said with enthusiasm uncommon among government officials.

A Navy test **pilot** and later a Northwest Airlines **pilot,** a founder of defunct Midway Airlines, and most recently an executive with McDonnell Douglas Corp.'s airliner division, the 60-year-old Mr. Hinson said: "It's an exciting time. We're out in front, no ...

... world, like television signals," Martin T. Pozesky, FAA associate administrator for system engineering and development, told reporters on the test flight as the plane made two approaches to National, coming within 20 feet of the surface before the **pilots** took over and applied full thrust to climb and join other planes in traffic patterns waiting to land.

The GPS approach received a major boost last month when the National Airline Commission, the latest but perhaps the most highly ...

... advances in other technologies."

****ILLUSTRATION/BOX

NO-HANDS NAVIGATION

Using signals from satellites 11,000 miles out in space and augmented by a

metres ahead from a height of 60 metres. Category 2 allows a plane to land when the runway can be seen 350 metres ahead from a height of 30 metres. Category 3A allows automatic ...

LEVEL 1 - 15 OF 24 STORIES

Aviation Week & Space Technology

December 18, 1989

SECTION: AEROSPACE PERSPECTIVES; Vol. 131, No. 25; Pg. 104

LENGTH: 1300 words

HEADLINE: Human Factors Are Critical In Computer-Driven Systems

BYLINE: DAVID HUGHES; David Hughes has been writing about various aspects of the aerospace and defense industry for a decade. For the past two years he has served as AVIATION WEEK'S Northeast bureau chief, monitoring aerospace and defense activity for the magazine in the Boston area and in Canada. He has reported on the importance of computer hardware and software in aircraft, radar and command and control systems based on the technical developments he has observed along Route 128 north of Boston. As an Air Force Reserve **pilot** he served from 1974-84 with the 709th Military Airlift Sqdn. at Dover AFB, Del., flying the Lockheed C-5A. He holds a master's degree in journalism from Northwestern's Medill School and an undergraduate liberal arts degree from Dartmouth College, where he learned to fly in 1969 in an Air Force ROTC program.

DATELINE: BOSTON

BODY:

... fly, but you had better hope he knows how to write a good line of computer code. Your life depends on it. After all, the code he writes drives the 2-3 computers that are checking each other to make certain the '' **hands off''** Category 3A **automatic landing** is a safe one.

This is just one of the many examples of how computers are taking over in the cockpits of today's automated transport aircraft, space vehicles and air traffic control centers -- not to mention in military aircraft and complex command and ...

Back in the days of ''The Right Stuff,'' test **pilots** fought a pitched battle to get at least rudimentary controls in the Mercury space capsule as insurance that they would not become ''Spam in a Can'' on flights controlled entirely from the ground. Computers in those days were not nearly as powerful as they are today, and the **pilots** wisely refused to put their fates entirely in

the hands of the computer wizards.

That rebellion against the engineers who thought computers could do it all proved useful. Designers of future space capsules considered the human factor more carefully and when things went ter ribly wrong on Apollo 13, the astronauts played a major role in getting themselves and the spacecraft back to Earth safely.

There have been a number of cases recently where improvisation by experienced **pilots** helped bring a transport aircraft back safely under circumstances never envisioned by the designers. For example, Capt. Alfred C. Haynes and the crew of United Flight 232 achieved a remarkable feat of airmanship in guiding ...

... Canada Boeing 767 at 41,000 ft. over Red Lake, Ontario, in 1983 because of human error in calculating the fuel load on the ground, it mattered a great deal that Capt. Bob Pearson was a glider **pilot.**

It also mattered that First Officer Maurice Quintal remembered an auxiliary airfield at Gimli he had flown out of during his days as a Royal Canadian Air Force **pilot.** He recalled the runway's orientation and helped Pearson line up for what proved to be a successful dead stick landing. None of the 61 passengers and eight crewmembers on the Gimli glider, as it came to be known, was injured. Needless to say, the computer programmers did ...

LEVEL 1 - 16 OF 24 STORIES

Aviation Week & Space Technology

January 3, 1983

SECTION: AVIONICS; Filter Center; Pg. 57

LENGTH: 99 words

BODY:

Automatic, hands-off vertical **landing** was perfomed recently with a McDonnell Douglas AV-8B Harrier 2 aircraft, using a new stability augmentation and attitude hold autopilot system built for the AV-8B by Sperry Flight Systems, Albuquerque, N. M. The ...

... despite the absence of forward airspeed inputs used in conventional aircraft automatic flight control systems. The entire 50-ft. vertical descent was accomplished with hands off the control stick, according to Bill Lowe, McDonnell Aircraft experimental test **pilot.**

Aviation Week & Space Technology

October 3, 1977

SECTION: SPACE TECHNOLOGY; Pg. 24

LENGTH: 1622 words

HEADLINE: Orbiter Nears Final Free Flight Tests

BYLINE: By Donald E. Fink

DATELINE: Edwards AFB, Calif.

BODY:

... dry lakebed.

Haise and Fullerton also flew the first orbiter free flight mission which ended with a landing on Runway 17. Astronauts Joe H. Engle and Richard H. Truly, the alternate crew in the approach and landing test program, **piloted** the Enterprise on its second flight, but had to land on lakebed Runway 15 because rains had flooded Runway 17 (AW&ST Sept. 19, p. 22).

A return to Runway 17 was a prerequisite for the third free flight because the ...

... proper heading.

"I very sharply banked to the right [after the windup turn] and put it on the right heading," Haise said. "It really speaks well of the orbiter's control that I could be that abrupt and really horse the airplane around."

Fullerton added that the NASA chase **pilots** accompanying the orbiter in Northrop T-38 chase aircraft also did an excellent job of staying in formation during the unplanned maneuver.

Control of the orbiter was passed to Fullerton once the orbiter was stabilized on the base leg of the landing pattern, and he initiated ...

... steering needles and engaged the lateral directional axis first," he said.

The vehicle rolled abruptly to acquire the exact runway heading and Fullerton moved the hand controller, causing the flight control system to revert to the manual control stick steering mode. He then engaged the **automatic landing** system's longitudinal axis and reengaged the lateral axis, which put them in **hands-off automatic** flight. "It was absolutely smooth and was headed right for the advertised aim point on the lakebed," Fullerton said. "At that point it was

Fred's airplane, and at 3,000 ft. he resumed control to come out of auto and take over for ...

GRAPHIC:

... orbiter landed on the Rogers Dry Lakebed at Edwards AFB, Calif., after a 5 min. 34 sec. flight that included an automatic coupled approach. Astronauts Fred W. Haise, Jr., and C. Gordon Fullerton **piloted** the Enterprise, and the carrier aircraft crew was led by Fitzhugh L. Fulton, Jr.

LEVEL 1 - 23 OF 24 STORIES

The Washington Post

September 28, 1977, Wednesday, Final Edition

Business & Finance; D9

606 words

FAA to Share Information on Landing System;
FAA Promises to Share Data on Landing System

By Douglas B. Feaver, Washington Post Staff Writer

BODY:

... International Civil Aviation Organization.

Both the British and American developments fall under the general heading of "microwave landing systems" or MLS, as they are called in the aviation world.

A fully developed MLS is supposed to improve dramatically the guidance information a **pilot** receives as he comes in for a landing and thus improve aviation safety. Almost three-fourths of all aviation accidents happen during approach and landing.

MLS also would provide a theoretical capability of increasing the number of planes that could be handled at a given airport in a given period of time and would improve the capability for fully **automatic "hands-off" landings** in bad weather.

There has been a viogorous debate for several years about whether the British or the American system is better. Neither side will gain an industrial advantage when the decision is made, both sides agree, because both U.S. and British manufactureers are ...

LEVEL 1 - 24 OF 24 STORIES

Aviation Week & Space Technology

November 22, 1976

SECTION: SPECIAL REPORT: Sixth Fleet Modernization-2; Pg. 30

LENGTH: 4080 words

HEADLINE: S-3A Strengthens Carrier's ASW Role

SERIES: This is the second article in a series on the modernization of the airborne capabilities of the Sixth Fleet in the Mediterranean. The first appeared Nov. 15, p. 34

BYLINE: By Clarence A. Robinson, Jr.

DATELINE: USS America at Sea

BODY:

... level from 30,000 ft. in less than 2 min.

* Low-level buffet-free performance with 2g turns at 45-deg. bank angles at a loiter speed of about 180 kt.

* Touch-and-go carier landings.

Piloting the aircraft for the demonstration flight was Lt. Cdr. Arthur C. Harris, who serves as the squadron maintenance officer Harris has amassed more than 350 hr. in the S-Oa. This editor occupied the copilot seat, and Lt. Thomas E. McKee, ...

... aileron trim at zero and the pitch trim at 2.5 deg. nose down just prior to takeoff. The underwing engine configuration of the aircraft tends to make the aircraft pitch upward, and it is compensated for by the pitch trim setting. The **pilot** checked the fan speed for the two General Electric TF34 axial flow turbofan engines. The engines developed 9,275 lb. thrust each with a bypass ratio of 6.23:1. The fan speed wad deterimined to be 6,550 rmp. and the engine temperature ...

... climb. This is standard operating procedure for flying off the America. The gross weight at launch was 47,000 lb.

The true air speed at a point 7 naut. mi. from the carrier was 350 kt. Harris turned on the automatic **pilot** after coming to a heading of 095 deg. in a 15-deg. bank. A computer was now flying the aircraft. The forward-looking infrared system mounted under the fuselage in a retractable turret was deployed and turned on.

1976 McGraw-Hill, Inc., Aviation Week, November 22, 1976

The flight control system in the S-3A is fully powered and integrated with the automatic flight control system to relieve the **pilot** of performing routine maneuvering for anti-submarine warfare work.

The **pilot** can revert to manual operation for an emergency or in the case of system failure. The automatic flight control system functions with an analog computer. It has a warning device to alert the **pilot** or copilot if there is a failure in the computer for the system or in the sensors interfacing with the computer.

If a subsystem fails, the automatic flight control disengages from the failed system and functions through the autopilot and an automatic thrust system.

In addition to the automtic ...

... hydraulic system is lost, half the hinge moment is lost. The remaining, system, however, can meet control requirements.

In normal powered operation, inputs to the rudder and elevator servos compensate for pitching moments and provide turn coordination and yaw damping. The **pilot** can anticipate aircraft maneuvers in normal autopilot flight, which provides parallel inputs to the power servos. This becomes important during low-altitude maneuvers and carrier landing approach.

The S-3A passed over a freighter sailing a ...

... an artificial feel to minimize maneuvering force variation throughout the flight envelope.

Ailerons and spoilers act together for roll maneuvers, and the spoilers serve alone as speed brakes. The spoilers are deactivated during an emergency with no hydraulic power, and the **pilot's** stick force operates the ailerons.

Pitch axis is controlled by a hydraulic-powered elevator servo and is trimmed by an electrically powered stabilizer trim actuator. The servo is under joint control by the **pilot** and the automatic flight control system during manual approach with the approach power conpensator turned on. In a parallel mode, the elevator and the **pilot's** control are positioned to give the **pilot** a preview of the automatic maneuver.

The rudder control enables the flight-crew to cope with an engine failure at low speed or with the asymmetric release of stores. The yaw axis rudder servo, like the elevator servo can operate in normal power, series, parallel, or in manual code for emergency.

The **pilot** climbed to a 900-ft. altitude at an air speed of 250 kt. at a point 30 naut. mi. from the fly-to location indicated on the display.On a heading of 106 deg., the time to go to reach the ...

... automatic carrier landing system communications set is the aN/ASW-25B, which operates with the shipboard dual tracking radar to control the S03A directly through the aircraft's autopilot. The aircraft's system also displays cross-needle glideslope and center line indications for **pilot** response during less than fully automatic carrier approaches.

With the radar channels in full operation, the ship's automatic carrier landing system can bring two aircraft per minute on board. A 29-channel shipboard instrument ...

... air-to-ground and air-to-air operational modes.

The copilot in the S-3A crew performs the duties of navigator, communicator and non-acoustic operator, in addition to his flying duties. Navigation and communications duties also may be performed by the tactical coordinator or the **pilot.** For this flight, McKee, who has almost 300 hr. in the S-3A, performed the navigation function. The sensor operator, Lawrence, has about 250 hr. in the aircraft.

The **pilot's** display scope presents the tactical situation, as does the **pilot's** but can be used to view outputs from the radar or other non-acoustic sensors.

In addition to Mode 1, the radar can function in two other modes. Modes 2 uses a slightly lower pulse frequency rate and ...

... rotation for surface search, coastal reconnaissance and weather avoidance out to a 150-naut. mi. range. The third mode combines aspects of Modes 1 and 2 and is used for long-range search out to 150 naut. mi.

The **pilot's** flight station display data can include sonobuoy positions, fly-to points, time, aircraft position and track, fixes and predicted taraget positions. On the lower portion of this scope, he receives cues and alerts to indicate sequences of action.

The tactical coordinator ...

... ship on the radar, which has a 240-deg. coverage. Harris diverted the flight to investigate the vessel. The ship was 44 naut. mi. from the carrier due west, and it was identified as a civilian tanker.After a reconnaissance of the vessel, the S-3A **pilot** turned toward the carrier. At this time it was 20 min. until the scheduled recovery.

Harris took up a position at the first check point for landing, an altitude of 1,200 ft. at 3 naut. mi. ...

... transmitter. By controlling the power levels, the automatic thrust system maintains a constant angle of attack, predetermined to provide the same stall margin and proper approach speed for every landing configuration and weight.

In normal operation, the approach and **landing** system will complete a **hands-off** approach and touchdown. The **automatic** carrier **landing** system with its radar measures the position of the approaching aircraft with reference to the ideal approach path, and sends pitch and roll corrections to the autopilot.

Prior to entering the carrier landing system radar acquisition window, the **pilot** turns on the automatic carrier landing system data link receiver and

protected and gets automatically engaged, when pilot opens cockpit door
Patent Assignee: HALEY M R (HALE-I)
Inventor: HALEY M R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030055541	A1	20030320	US 2001322442	P	20010917	200344	B
			US 2001322470	P	20010917		
			US 2002234769	A	20020904		

Priority Applications (No Type Date): US 2002234769 A 20020904; US 2001322442 P 20010917; US 2001322470 P 20010917
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030055541	A1		4	G06F-017/00	Provisional application US 2001322442
					Provisional application US 2001322470

Abstract (Basic): US 20030055541 A1

NOVELTY - The password protected autopilot is automatically engaged if the pilot opens the cockpit door after take-off or if the cockpit door is forcibly opened. The autopilot is overridden only by the pilot or by a ground controller in case of emergency.

USE - 911 **autopilot** for **preventing** aircraft **hijacking** .

ADVANTAGE - Effectively **prevents** **hijacking** of aircraft, as the disengagement of **autopilot** is simply delayed until a military escort arrives.

DESCRIPTION OF DRAWING(S) - The figure shows the flowchart illustrating the procedure and technology for preventing aircraft **hijacking** .

pp; 4 DwgNo 1/1

Derwent Class: T01; W06
International Patent Class (Main): G06F-017/00

17/7/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014696321 **Image available**
WPI Acc No: 2002-517025/200255
Aircraft fly by wire system for use in emergency situations, e.g. hijackings **, designed to** deactivate **controls and activate** autopilot **functions**
Patent Assignee: LARSSON M R (LARS-I); LINDBLOM E J (LIND-I)
Inventor: LARSSON M R; LINDBLOM E J
Number of Countries: 101 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SE 200103064	A	20010914	SE 20013064	A	20010914	200255	B
WO 200324796	A1	20030327	WO 2002SE1634	A	20020912	200323	

Priority Applications (No Type Date): SE 20013064 A 20010914
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SE 200103064	A		28	B64D-045/00	
WO 200324796	A1	E		B64D-045/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN

YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): SE 200103064 A

NOVELTY - Upon activation by a pilot or other cockpit personnel during flight, the system will deactivate one or more functions for manual and/or automatic control of the aircraft in flight, and will also activate autopilot-related functions.

USE - Aircraft fly by wire system for use in emergency situations, e.g. **hijackings**

ADVANTAGE - **Terrorist** attacks such as those that took place on 11 September 2001 can be safely prevented.

DESCRIPTION OF DRAWING(S) - Figure 1 shows a perspective view of an airplane with a radio link to an external information transmission system.

Airplane (1)
Airspace (2)
Height rudder (2a)
Servo motor (2a)
Side rudder (2b)
Servo motor (2b)
Skew rudders (2c, 2c)
Servo motor (2c)
Ground station (3)
Aircraft simulator (3a)
Fly-by-wire system (10)
Fly-wire-system activation means (11)
pp; 28 DwgNo 1/5

Derwent Class: Q25; W05; W06
International Patent Class (Main): B64D-045/00
International Patent Class (Additional): B64C-013/18
?

18/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015813335 **Image available**
WPI Acc No: 2003-875539/200381

Hijacking prevention method for e.g. commercial aircraft **, involves** deactivating on - board control **of** autopilot **and flight systems, and directing autopilot system to fly** aircraft **to landing when predetermined override input is detected**

Patent Assignee: NELSON D G (NELS-I); CUBIC DEFENSE SYSTEMS INC (CUBI-N)
Inventor: NELSON D G
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030201365	A1	20031030	US 2001974545	A	20011009	200381	B
US 6641087	B1	20031104	US 2001974545	A	20011009	200381	

Priority Applications (No Type Date): US 2001974545 A 20011009
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030201365	A1		13	B64D-011/00	
US 6641087	B1			B64D-011/00	

Abstract (Basic): US 20030201365 A1

NOVELTY - The method involves **deactivating on - board control** of an **autopilot** system and flight system, and directing the autopilot system to fly the **aircraft** to a landing when a predetermined override input is detected. A hijacking intervention module **deactivates** the **autopilot** and flight systems, and directs the autopilot system to fly the **aircraft** to a landing.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a signal bearing medium;
(b) a logic circuit; and
(c) an anti-hijacking system.

USE - For e.g. commercial **aircraft** .

ADVANTAGE - Provides a completely safe flying environment. Counteracts successful hijackings by forcibly assuming control of the hijacked **aircraft** , and overriding pilot controls in the cockpit. Prevents hijackers from flying the **aircraft** . Prevents pilots from flying the **aircraft** according to hijacker's direction. Deters hijackers by informing them of the difficulty of carrying out a successful hijacking. Improves operating flexibility. Enables landing the **aircraft** even when the **pilots** are dead or **incapacitated** .

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the hardware components and interconnections of the anti-hijacking system.

pp; 13 DwgNo 1/4

Derwent Class: Q25; W06
International Patent Class (Main): B64D-011/00
International Patent Class (Additional): B64C-013/20; B64D-013/00
?

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show files;ds
File   9:Business & Industry(R) Jul/1994-2004/Apr 16
         (c) 2004  The Gale Group
File  16:Gale Group PROMT(R) 1990-2004/Apr 19
         (c) 2004 The Gale Group
File  18:Gale Group F&S Index(R) 1988-2004/Apr 16
         (c) 2004 The Gale Group
File  20:Dialog Global Reporter 1997-2004/Apr 19
         (c) 2004 The Dialog Corp.
File  80:TGG Aerospace/Def.Mkts(R) 1986-2004/Apr 19
         (c) 2004 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2004/Apr 19
         (c)2004 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 180:Federal Register 1985-2004/Apr 19
         (c) 2004 format only The DIALOG Corp
File 264:DIALOG Defense Newsletters 1989-2004/Apr 16
         (c) 2004 The Dialog Corp.
File 388:PEDS: Defense Program Summaries 1999/May
         (c) 1999 Forecast Intl/DMS
File 481:DELPHES Eur Bus 95-2004/Apr W1
         (c) 2004 ACFCI & Chambre CommInd Paris
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
File 587:Jane`s Defense&Aerospace 2004/Apr W2
         (c) 2004 Jane`s Information Group
File 605:U.S. Newswire 1999-2004/Mar 19
         (c) 2004 U.S. Newswire via Comtex
File 621:Gale Group New Prod.Annou.(R) 1985-2004/Apr 16
         (c) 2004 The Gale Group
File 624:McGraw-Hill Publications 1985-2004/Apr 14
         (c) 2004 McGraw-Hill Co. Inc
File 635:Business Dateline(R) 1985-2004/Apr 17
         (c) 2004 ProQuest Info&Learning
File 636:Gale Group Newsletter DB(TM) 1987-2004/Apr 19
         (c) 2004 The Gale Group
File 660:Federal News Service 1991-2002/Jul 02
         (c) 2002 Federal News Service
File 665:U.S. Newswire 1995-1999/Apr 29
         (c) 1999 U.S. Newswire via Comtex

Set     Items   Description
S1   15009943   PREVENT? OR DETER? OR PROHIBIT? OR STOP? OR OVERRIDE? OR O-
             VER()RIDING OR OVER()RIDE? OR OVERRIDING OR LIMIT? OR DETER? -
             OR DEACTIVAT? OR BLOCK?
S2      22113   AUTO()PILOT? OR AUTOPILOT OR FLY(2W)WIRE
S3      10380   (ONBOARD OR ON()BOARD)(3N)(CONTROL? OR PILOTING OR PILOTED
             OR FLYING)
S4    9716327   SENSOR? OR SENSING OR MONITOR? OR CONTROL?
S5      18763   MANUAL?(3N)(COMMAND? ? OR INSTRUCTION? OR ORDERS OR DIRECT-
             ?)
S6      28567   MANUAL?(3N)(CONTROL? OR MANIPULAT? OR FLY? OR GUIDE? ? OR -
             GUIDANCE OR GUIDING)
S7   10490728   RUDDER? OR POWER OR ENGINE? OR LANDING()GEAR? OR BRAKES OR
             REVERSE THRUST OR NOSEWHEEL OR STEERING
S8     160129   (REMOTE OR ON(2N)GROUND)(3N)(GUIDANCE OR CONTROL? OR INSTR-
             UCT? OR CONTROL? OR DIRECT? OR PILOT?)
S9      70742   (FORCE? OR CONTROL? OR INDUCE? OR DIRECT?)(3N)(LANDING OR -
             LAND)
S10    964221   PILOT?
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S11     812195   HIJACK? OR TERRORIST?
S12    2727096   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
                ? OR JET()LINER OR JETLINER?
S13       1615   (INCAPACIT? OR DISABLE? OR AILING OR ILLNESS OR ILL)(4N)(P-
                ILOT OR PILOTS)
S14          6   S1(S)S2(S)S13
S15          5   RD (unique items)
S16          2   S15 NOT PD=>20010911
S17       4155   (INCAPACIT? OR DISABLE? OR AILING OR HEART()ATTACK? OR HEA-
                RTATTACK? OR ILLNESS OR SICK? OR INJURY OR INJURED)(4N)(PILOT
                OR PILOTS)
S18     970937   ILL(NOT T)ILL()TRAINED
S19        331   S17(S)(S6 OR S7 OR S8)
S20         34   S19(2S)(S8 OR S9)
S21         23   S20 NOT PD>=20010911
S22         16   RD (unique items)
S23        972   S1(7N)S10(7N)S4(7N)S7
S24          9   S1(7N)S3(7N)S8
?
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    Items   Description
S1   15009943   PREVENT? OR DETER? OR PROHIBIT? OR STOP? OR OVERRIDE? OR O-
            VER()RIDING OR OVER()RIDE? OR OVERRIDING OR LIMIT? OR DETER? -
            OR DEACTIVAT? OR BLOCK?
S2      22113   AUTO()PILOT? OR AUTOPILOT OR FLY(2W)WIRE
S3      10380   (ONBOARD OR ON()BOARD)(3N)(CONTROL? OR PILOTING OR PILOTED
            OR FLYING)
S4    9716327   SENSOR? OR SENSING OR MONITOR? OR CONTROL?
S5      18763   MANUAL?(3N)(COMMAND? ? OR INSTRUCTION? OR ORDERS OR DIRECT-
            ?)
S6      28567   MANUAL?(3N)(CONTROL? OR MANIPULAT? OR FLY? OR GUIDE? ? OR -
            GUIDANCE OR GUIDING)
S7   10490728   RUDDER? OR POWER OR ENGINE? OR LANDING()GEAR? OR BRAKES OR
            REVERSE THRUST OR NOSEWHEEL OR STEERING
S8     160129   (REMOTE OR ON(2N)GROUND)(3N)(GUIDANCE OR CONTROL? OR INSTR-
            UCT? OR CONTROL? OR DIRECT? OR PILOT?)
S9      70742   (FORCE? OR CONTROL? OR INDUCE? OR DIRECT?)(3N)(LANDING OR -
            LAND)
S10    964221   PILOT?
S11    812195   HIJACK? OR TERRORIST?
S12   2727096   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
            ? OR JET()LINER OR JETLINER?
S13      1615   (INCAPACIT? OR DISABLE? OR AILING OR ILLNESS OR ILL)(4N)(P-
            ILOT OR PILOTS)
S14         6   S1(S)S2(S)S13
S15         5   RD (unique items)
S16         2   S15 NOT PD=>20010911
S17      4155   (INCAPACIT? OR DISABLE? OR AILING OR HEART()ATTACK? OR HEA-
            RTATTACK? OR ILLNESS OR SICK? OR INJURY OR INJURED)(4N)(PILOT
            OR PILOTS)
S18    970937   ILL(NOT T)ILL()TRAINED
S19       331   S17(S)(S6 OR S7 OR S8)
S20        34   S19(2S)(S8 OR S9)
S21        23   S20 NOT PD>=20010911
S22        16   RD (unique items)
?
```

24/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

3413403 Supplier Number: 03413403
Can Computers Foil Air Pirates?
(developing systems to prevent aeronautical terrorism such as 9/11/2001)
New York Times , v CLI, n 52,085, p E1+
April 11, 2002
DOCUMENT TYPE: National Newspaper ISSN: 0362-4331 (United States)
LANGUAGE: English RECORD TYPE: Abstract

ABSTRACT:
...as instruments of terrorism, as occurred on 9/11/2001. Some ideas getting attention include **on - board** flight- **control** systems that could **prevent** aircraft from entering restricted air space, **remote control** from the ground that could not be overridden in the cockpit, and a panic button...

24/3,K/2 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

10875406 Supplier Number: 110811768 (USE FORMAT 7 FOR FULLTEXT)
SC-2100 LED controller. (New York State Photonics Product Showcase)
Laser Focus World, v39, n10, p126(1)
Oct, 2003
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 151

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
...or -) 2% over the lifetime of the LED head, and monitors LED head temperature to **prevent** premature failure of the LEDs. Standard features include auto head recognition, 2A light source output, **remote control** interface, **on - board** configuration memory and remote trigger with programmable duty cycle. The SC-2100 Controller provides features...

24/3,K/3 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

09419047 Supplier Number: 82535211 (USE FORMAT 7 FOR FULLTEXT)
Fault-finding feast: Numerous onboard fault detection technologies are being developed to help identify defects before they cause serious problems.
Ytuarte, Christopher
Railway Age, v203, n1, p37(3)
Jan, 2002
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 1113

... lines and engine sensor input, and combines that information with GPS navigation system data to **determine** train mileage and location. Data is regularly downloaded to a **remote control** room, while the **onboard**

software continuously monitors pre-set levels and sends immediate warnings or alarm signals, with status...

24/3,K/4 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06515680 Supplier Number: 55264665 (USE FORMAT 7 FOR FULLTEXT)
New Semiconductor Component Group Half Bridge Controller Provides State-of-the-Art Frequency Control For Fluorescent Lamp Ballasts.
PR Newswire, p9283
July 27, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 573

... between the high side and low side drivers is greatly reduced.
The device features an **onboard** current **controlled** oscillator (ICO) which **determines** the frequency of the driver and makes dimming and **remote control** possible when used in the regulation mode. It automatically manages the preheating of the tube...

24/3,K/5 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

06401890 (USE FORMAT 7 OR 9 FOR FULLTEXT)
New Semiconductor Component Group Half Bridge Controller Provides State-of-the-Art Frequency Control For Fluorescent Lamp Ballasts
PR NEWSWIRE
July 27, 1999
JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 592

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... between the high side and low side drivers is greatly reduced.
The device features an **onboard** current **controlled** oscillator (ICO) which **determines** the frequency of the driver and makes dimming and **remote control** possible when used in the regulation mode. It automatically manages the preheating of the tube...

24/3,K/6 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

14268290 SUPPLIER NUMBER: 82535211 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Fault-finding feast: Numerous onboard fault detection technologies are being developed to help identify defects before they cause serious problems.
Ytuarte, Christopher
Railway Age, 203, 1, 37(3)
Jan, 2002
ISSN: 0033-8826 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1113 LINE COUNT: 00095

... lines and engine sensor input, and combines that information with

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how files;ds
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)
         (c) 2004 JPO & JAPIO
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200425
         (c) 2004  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.
File 344:Chinese Patents Abs Aug 1985-2004/Mar
         (c) 2004 European Patent Office

Set     Items   Description
S1    5264825   PREVENT? OR DETER? OR PROHIBIT? OR STOP? OR OVERRIDE? OR O-
             VER()RIDING OR OVER()RIDE? OR OVERRIDING OR LIMIT? OR DETER? -
             OR DEACTIVAT? OR BLOCK?
S2        756   AUTO()PILOT? OR AUTOPILOT OR FLY(2W)WIRE OR F()B()W
S3       1178   (ONBOARD OR ON()BOARD)(3N)(CONTROL? OR PILOTING OR PILOTED
             OR FLYING)
S4    4668762   SENSOR? OR SENSING OR MONITOR? OR CONTROL?
S5       3663   MANUAL?(3N)(COMMAND? ? OR INSTRUCTION? OR ORDERS OR DIRECT-
             ?)
S6      20604   MANUAL?(3N)(CONTROL? OR MANIPULAT? OR FLY? OR GUIDE? ? OR -
             GUIDANCE OR GUIDING)
S7    2951190   RUDDER? OR POWER OR ENGINE? OR LANDING()GEAR? OR BRAKES OR
             REVERSE THRUST OR NOSEWHEEL OR STEERING
S8      91743   (REMOTE OR REMOTELY OR ON(2N)GROUND)(3N)(GUIDANCE OR CONTR-
             OL? OR INSTRUCT? OR CONTROL? OR DIRECT? OR PILOT?)
S9       2384   (FORCE? OR CONTROL? OR INDUCE? OR DIRECT?)(3N)(LANDING OR -
             LAND)
S10     50149   PILOT?
S11       657   HIJACK? OR AIR()PIRAT? OR TERRORIST?
S12    560033   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
             ? OR JET()LINER OR JETLINER?
S13        30   (INCAPACIT? OR DISABLE? OR AILING OR ILLNESS OR ILL)(4N)(P-
             ILOT OR PILOTS)
S14        96   PANIC()BUTTON?
S15        69   S1(7N)S3
S16        54   S1(7N)S2
S17         7   (S15 OR S16) AND S11
S18         1   (S15 OR S16) AND S12 AND S13
?
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17/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016020572 **Image available**
WPI Acc No: 2004-178423/200417
Commercial airplane security system for allowing pilot on the ground to take control of high-jacked aircraft and override on - board piloting **system and direct aircraft along flight path different from that desired by high-jacker**
Patent Assignee: WATERMAN S A (WATE-I)
Inventor: WATERMAN S A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6691956	B1	20040217	US 2002189273	A	20020703	200417	B

Priority Applications (No Type Date): US 2002189273 A 20020703
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6691956	B1		4	B64C-013/00	

Abstract (Basic): US 6691956 B1
NOVELTY - The security system includes an on-board device that **overrides** an **on - board piloting** system using a computer secretly located in the airplane. An off-board device allows a qualified pilot off-board the airplane, e.g. in the control tower, to contact the on-board device using a secret code via a GPS satellite, **override** the **on - board piloting** system and direct the aircraft along a flight path that is different from that desired by the high-jacker.
USE - Aircraft security system for allowing authorized pilots in control tower on the ground to take control of a high-jacked commercial airliner, private jetliner or private airplane to prevent it from being used as a weapon.
ADVANTAGE - Allows government officials such as air-traffic controllers to override an airplane's manual control system and to place the **hijacked** airliner on the auto pilot system, which cannot be over-ridden by the high-jacker. Permit authorized pilots on the ground to manually control the flight path of the **hijacked** plane, so that the off-board pilot can safely land the aircraft.
DESCRIPTION OF DRAWING(S) - The figure is the block diagram of the satellite positioning and control system.
pp; 4 DwgNo 1/1
Derwent Class: Q25; T06; W05; W06
International Patent Class (Main): B64C-013/00

17/7/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015961881 **Image available**
WPI Acc No: 2004-119722/200412
Aircraft control method prevents **pilot control and uses** auto - pilot **to land aircraft at selected airport, if aircraft is determined to be on path which will cause aircraft to hit designated structure e.g. government building**
Patent Assignee: MARDIROSSIAN A (MARD-I)
Inventor: MARDIROSSIAN A

Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030225486	A1	20031204	US 2002157013	A	20020530	200412	B

Priority Applications (No Type Date): US 2002157013 A 20020530
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030225486	A1		5	G05D-001/00	

Abstract (Basic): US 20030225486 A1

NOVELTY - If an in-flight air aircraft is determined to be on a flight path and/or a potential path which may cause the aircraft to hit one or more designated structures within a preset period, the pilot is automatically **prevented** from controlling the aircraft and uses **auto - pilot** to land aircraft at selected airport.

DETAILED DESCRIPTION - Locations of designated structures, e.g. high-rise buildings, monuments, government buildings, are stored into a memory (22).

USE - For aircraft e.g. commercial airliners, private planes, helicopters.

ADVANTAGE - Reduces likelihood of **terrorists** being able to utilize aircraft as weapons.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the aircraft control system.

pp; 5 DwgNo 2/2

Derwent Class: T01; T06; W06
International Patent Class (Main): G05D-001/00

17/7/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015813335 **Image available**
WPI Acc No: 2003-875539/200381

Hijacking **prevention method for e.g. commercial aircraft, involves** deactivating on - board control **of** autopilot **and flight systems, and directing autopilot system to fly aircraft to landing when predetermined override input is detected**

Patent Assignee: NELSON D G (NELS-I); CUBIC DEFENSE SYSTEMS INC (CUBI-N) Applicant
Inventor: NELSON D G
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030201365	A1	20031030	US 2001974545	A	20011009	200381	B
US 6641087	B1	20031104	US 2001974545	A	20011009	200381	

Priority Applications (No Type Date): US 2001974545 A 20011009
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030201365	A1		13	B64D-011/00	
US 6641087	B1			B64D-011/00	

Abstract (Basic): US 20030201365 A1

NOVELTY - The method involves **deactivating on - board control** of an **autopilot** system and flight system, and directing the autopilot system to fly the aircraft to a landing when a predetermined override input is detected. A **hijacking** intervention module **deactivates** the **autopilot** and flight systems, and directs the autopilot system to fly

the aircraft to a landing.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(a) a signal bearing medium;
(b) a logic circuit; and
(c) an anti- **hijacking** system.
USE - For e.g. commercial aircraft.
ADVANTAGE - Provides a completely safe flying environment. Counteracts successful **hijackings** by forcibly assuming control of the **hijacked** aircraft, and overriding pilot controls in the cockpit. Prevents **hijackers** from flying the aircraft. Prevents pilots from flying the aircraft according to **hijacker** 's direction. Deters **hijackers** by informing them of the difficulty of carrying out a successful **hijacking** . Improves operating flexibility. Enables landing the aircraft even when the pilots are dead or incapacitated.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the hardware components and interconnections of the anti- **hijacking** system.
pp; 13 DwgNo 1/4
Derwent Class: Q25; W06
International Patent Class (Main): B64D-011/00
International Patent Class (Additional): B64C-013/20; B64D-013/00

17/7/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015443034 **Image available**
WPI Acc No: 2003-505176/200347
Three-dimensional box system for tracking and transmitting video images or streams from cameras placed at various points both inside and outside an aircraft includes auto pilot **unit** over - riding **system**
Patent Assignee: NAIDU P (NAID-I)
Inventor: NAIDU P
Number of Countries: 102 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200345777	A1	20030605	WO 2002AU1613	A	20021128	200347	B
AU 2002364766	A1	20030610	AU 2002364766	A	20021128	200419	

Priority Applications (No Type Date): AU 20019191 A 20011129
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200345777	A1	E	12	B64C-019/00	
AU 2002364766	A1			B64C-019/00	Based on patent WO 200345777

(WO 200345777) Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW

Abstract (Basic): WO 200345777 A1
NOVELTY - The system is capable of **over - riding** the **auto - pilot** unit to enable the aircraft to continue the path of flight in the event of a **hijack** . In the event of **hijackers** taken over control of the plane, their actions will prove futile as they cannot change the predetermined destination even if they want to since the system would

have taken control from the ground station via the auto pilot unit.
USE - For tracking and transmitting video images or streams from cameras placed at various points both inside and outside an aircraft.
ADVANTAGE - The system benefits in the situation of e.g. **hijacking** , aircraft emergencies.
DESCRIPTION OF DRAWING(S) - The drawing shows the placement of cameras inside and outside of an aircraft.
pp; 12 DwgNo 1/2
Derwent Class: Q25; W02; W04; W06
International Patent Class (Main): B64C-019/00
International Patent Class (Additional): B64D-045/00; B64D-045/000; B64D-047/08; B64D-047/088; G08G-005/00; G08G-005/000

17/7/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015432451
WPI Acc No: 2003-494593/200347
Aircraft with terror prevention system, has blocking **system that removes functions of** on - board controllers **, is activated by signal generator in cockpit, and sets controls to defined values**
Patent Assignee: BAUMANN H (BAUM-I)
Inventor: BAUMANN H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 10155144	A1	20030522	DE 1055144	A	20011112	200347	B

Priority Applications (No Type Date): DE 1055144 A 20011112
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 10155144	A1		2	G05D-001/10	

Abstract (Basic): DE 10155144 A1
NOVELTY - The aircraft has the capability control of the elevators, rudder, fuel feed, landing flaps, undercarriage mechanisms both with controllers in the cockpit and by remote controllers. A **blocking** system removes functions of the **on - board controllers** and is activated by a signal generator in the cockpit that sets the controls to defined values when it activates the blocking systems.
USE - For preventing **terrorists** from forcing the pilot to fly to a destination or from taking over the aircraft.
ADVANTAGE - Enables control of the aircraft to be maintained while blocking terrorism.
pp; 2 DwgNo 0/0
Derwent Class: Q25; T06; W05; W06
International Patent Class (Main): G05D-001/10
International Patent Class (Additional): B64C-013/10; B64C-019/00; G08B-015/00

17/7/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015404561 **Image available**
WPI Acc No: 2003-466702/200344
911 autopilot **for** preventing **aircraft** hijacking **, is password**

4/9/9 (Item 1 from file: 624)

01329474

India in talks with Boeing, EADS on anti-hijacking technologies

Aviation Week's Homeland Security & Defense March 26, 2003; Pg 9; Vol. 2, No. 13
Journal Code: HS ISSN: 0193-4597
Dateline: NEW DELHI
Word Count: 285

BYLINE:
Bulbul Singh (bulbul.singh@indiatimes.com)

TEXT:

Defense giants Boeing and the European Aeronautic Defence and Space Company (EADS) of France have offered custom aircraft hijacking prevention packages to domestic carriers Indian Airlines and Air-India, according to Indian officials.

With India's civil airlines under threat from terrorist groups, the Indian government has set aside funds to install new security systems on board about 100 aircraft, the officials said.

The technology package offered by Boeing and EADS is aimed at ensuring that a hijacker cannot pilot an aircraft. Once the aircraft deviates from its path, air traffic **controllers** can **deactivate** the **on - board controls** and land the aircraft safely using fly-by-wire technologies.

The **controllers** could **override** any **remote control** systems and take over the flight computer system used to maneuver the aircraft. The technology also includes an instrument landing system that controllers on the ground could use.

In addition, both companies also offered new jamming systems to prevent on-board communication channels from being cut off during a hijacking.

The companies also have offered signaling systems and air collision avoidance systems to re-direct hijacked aircraft that otherwise might be steered into buildings.

The companies also have offered modifications in all existing civil aircraft that include reinforced cockpit doors, pressurized bulkheads and surveillance cameras to monitor the passenger cabin.

EADS has offered a special valve to counter any depressurization that might occur from a breach in the hull.

The two companies have also offered special training programs for pilots to remain in the cockpit even in the event that hijackers try to kill other crewmembers or passengers.

COMPANY NAMES (DIALOG GENERATED): Boeing ; EADS ; Indian Airlines and Air ; Space Company

?

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show files;ds
File   2:INSPEC 1969-2004/Apr W1
         (c) 2004 Institution of Electrical Engineers
File   6:NTIS 1964-2004/Apr W2
         (c) 2004 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2004/Apr W1
         (c) 2004 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2004/Apr W2
         (c) 2004 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  92:IHS Intl.Stds.& Specs. 1999/Nov
         (c) 1999 Information Handling Services
File  94:JICST-EPlus 1985-2004/Mar W4
         (c)2004 Japan Science and Tech Corp(JST)
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/Mar
         (c) 2004 The HW Wilson Co.

Set     Items   Description
S1    6949431   PREVENT? OR DETER? OR PROHIBIT? OR STOP? OR OVERRIDE? OR O-
             VER()RIDING OR OVER()RIDE? OR OVERRIDING OR LIMIT? OR DEACTIV-
             AT? OR BLOCK?
S2       5053   AUTO()PILOT? OR AUTOPILOT OR FLY(2W)WIRE
S3       2658   (ONBOARD OR ON()BOARD)(3N)(CONTROL? OR PILOTING OR PILOTED
             OR FLYING)
S4    5727987   SENSOR? OR SENSING OR MONITOR? OR CONTROL?
S5       8399   MANUAL?(3N)(COMMAND? ? OR INSTRUCTION? OR ORDERS OR DIRECT-
             ?)
S6      15088   MANUAL?(3N)(CONTROL? OR MANIPULAT? OR FLY? OR GUIDE? ? OR -
             GUIDANCE OR GUIDING)
S7    3828418   RUDDER? OR POWER? OR ENGINE? OR LANDING()GEAR? OR BRAKES OR
              REVERSE THRUST OR NOSEWHEEL OR STEERING
S8      39536   (REMOTE OR ON(2N)GROUND)(3N)(GUIDANCE OR CONTROL? OR INSTR-
             UCT? OR CONTROL? OR DIRECT? OR PILOT?)
S9      10732   (FORCE? OR CONTROL? OR INDUCE? OR DIRECT?)(3N)(LANDING OR -
             LAND)
S10    156694   PILOT?
S11      5201   HIJACK? OR TERRORIST?
S12   1002334   AIRCRAFT? OR PLANE? ? OR AEROPLANE? OR AIRPLANE? OR PLANE?
             ? OR JET()LINER OR JETLINER?
S13      3883   AUTOPILOT? OR AUTO()PILOT?
S14        52   S1(4N)S3
S15        97   S1(4N)S2
S16        86   (S14 OR S15) AND S13
S17         0   S16 AND S11
S18        28   S16 AND S12
S19         3   S16 AND (S5 OR S6)
S20         1   (S14 OR S15) AND S9
S21         4   (S14 OR S15) AND S8
S22         4   RD (unique items)
?
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nternational Patent Class (Additional): B64C-013/20; B64D-013/00
? show files;ds
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)
         (c) 2004 JPO & JAPIO
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200423
         (c) 2004  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.
File 344:Chinese Patents Abs Aug 1985-2004/Mar
         (c) 2004 European Patent Office

Set     Items   Description
S1         87   AU='NELSON D' OR AU='NELSON D G'
S2          1   S1 AND HIJACK?
? log
```

S2 1 S1 AND HIJACK?
? t 2/7

2/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015813335 **Image available**
WPI Acc No: 2003-875539/200381

Hijacking **prevention method for e.g. commercial aircraft, involves deactivating on-board control of autopilot and flight systems, and directing autopilot system to fly aircraft to landing when predetermined override input is detected**

Patent Assignee: NELSON D G (NELS-I); CUBIC DEFENSE SYSTEMS INC (CUBI-N)
Inventor: **NELSON D G**
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030201365	A1	20031030	US 2001974545	A	20011009	200381	B
US 6641087	B1	20031104	US 2001974545	A	20011009	200381	

Priority Applications (No Type Date): US 2001974545 A 20011009
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030201365	A1		13	B64D-011/00	
US 6641087	B1			B64D-011/00	

Abstract (Basic): US 20030201365 A1

NOVELTY - The method involves deactivating on-board control of an autopilot system and flight system, and directing the autopilot system to fly the aircraft to a landing when a predetermined override input is detected. A **hijacking** intervention module deactivates the autopilot and flight systems, and directs the autopilot system to fly the aircraft to a landing.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a signal bearing medium;
(b) a logic circuit; and
(c) an anti- **hijacking** system.

USE - For e.g. commercial aircraft.

ADVANTAGE - Provides a completely safe flying environment. Counteracts successful **hijackings** by forcibly assuming control of the **hijacked** aircraft, and overriding pilot controls in the cockpit. Prevents **hijackers** from flying the aircraft. Prevents pilots from flying the aircraft according to **hijacker** 's direction. Deters **hijackers** by informing them of the difficulty of carrying out a successful **hijacking** . Improves operating flexibility. Enables landing the aircraft even when the pilots are dead or incapacitated.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the hardware components and interconnections of the anti- **hijacking** system.

pp; 13 DwgNo 1/4

Derwent Class: Q25; W06
International Patent Class (Main): B64D-011/00
International Patent Class (Additional): B64C-013/20; B64D-013/00
?

9/7/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

00322943 INSPEC Abstract Number: C71023504
Title: Aircraft control system
Assignee(s): Elliott Bros. (London) Ltd
Patent Number: GB 1240862 Issue Date: 710728
Application Date: 690808
Priority Appl. Number: GB 38338-68; 54583-68 Priority Appl. Date: 680810; 681118
Country of Publication: UK
Language: English Document Type: Patent (PT)
Treatment: New Developments (N); Practical (P)
Abstract: The system is of the type in which a control surface of an aircraft is operated by rams coupled to actuators, the rams being operable either manually or by a **autopilot**. The control surface is split into a number of sections each operated by a ram. The system enables the sections to be operated manually with a slight degree of desynchronism between the rams and a **manual** **controller**, when an applied force smaller than that required to **override** the **autopilot** is used.
Subfile: C

19/7/2 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

1626743 NTIS Accession Number: N92-13576/3
Acquisition and Production of Skilled Behavior in Dynamic Decision-Making Tasks: Modeling Strategic Behavior in Human-Automation Interaction: Why an Aid Can (And Should) Go Unused
(Semiannual Status Report)
Kirlik, A.
Georgia Inst. of Tech., Atlanta.
Corp. Source Codes: 010263000; GW167534
Sponsor: National Aeronautics and Space Administration, Washington, DC.
Report No.: NAS 1.26:188962; TR-91-5; NASA-CR-188962
Sep 91 35p
Languages: English
Journal Announcement: GRAI9207; STAR3004
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A03/MF A01
Country of Publication: United States
Contract No.: NAG2-656; NAG2-195
Advances in computer and control technology offer the opportunity for task-offload aiding in human-machine systems. A task-offload aid (e.g., an **autopilot** , an intelligent assistant) can be selectively engaged by the human operator to dynamically delegate tasks to an automated system. Successful design and performance prediction in such systems requires knowledge of the factors influencing the strategy the operator develops and uses for managing interaction with the task-offload aid. A model is presented that shows how such strategies can be predicted as a function of three task context properties (frequency and duration of secondary tasks and costs of delaying secondary tasks) and three aid design properties (aid engagement and disengagement times, aid performance relative to human performance). Sensitivity analysis indicates how each of these contextual and design factors affect the optimal aid aid usage strategy and attainable

system performance. The model is applied to understanding human-automation interaction in laboratory experiments on human supervisory control behavior. The laboratory task allowed subjects freedom to **determine** strategies for using an **autopilot** in a dynamic, multi-task environment. Modeling results suggested that many subjects may indeed have been acting appropriately by not using the **autopilot** in the way its designers intended. Although **autopilot** function was technically sound, this aid was not designed with due regard to the overall task context in which it was placed. These results demonstrate the need for additional research on how people may strategically manage their own resources, as well as those provided by automation, in an effort to keep workload and performance at acceptable levels.

19/7/3 (Item 2 from file: 6)
DIALOG(R)File 6:NTIS

0147720 NTIS Accession Number: AD-671 892/XAB
Pilot Failure Detection Performance with Three Levels of Fault Warning Information
(Final rept. 20 Mar-26 Apr 67 on Phase 1)
Vreuls, D. ; Barnebey, S. F. ; Nichols, D. E. ; Dent, P. L.
Bunker-Ramo Corp Canoga Park Calif
Corp. Source Codes: 066870
Report No.: FAA-RD-68-9
Feb 68 143p
Journal Announcement: USGRDR6817
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A07/MF A01
Contract No.: FA-67-WA-1700; FAA-320-212-09N

A study was made to examine the feasibility of display and control concepts for commercial subsonic jet transport all-weather (Category III) approach and landing. The study was addressed primarily to fault warning. Pilot detection of **autopilot** and display system failures was examined with three levels of fault warning display information. Display failure detection and pilot decisions were additionally examined as a function of pilot task load, manual in one axis or automatic. A total of 702 simulated ILS approaches were flown by 18 commercial airline pilots in a Boeing 707-720B research simulator. Pilot/system performance and preference data indicated that the full annunciator display system tested was required in order to attain the best display failure and passive **autopilot** control failure detection. The failure warning utility of mode progress information below 200 feet of altitude on the approach was found to be inadequate. The data suggested that: (1) mode progress information be de-emphasized, (2) **manual** **control** of just one axis causes pilot fault-detection performance to **deterioriate** compared to monitoring full **autopilot** operation, (3) second failures following first failures which put the pilot into split-axis control were frequently missed, and (4) there is not enough time from 100 feet to landing to allow any complicated land-or-go-around decision process. Some general characteristics of fault warning displays were discussed. (Author)
?

20/7/1 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

0555026 NTIS Accession Number: AD-A025 253/6/XAB
TACAN and Dual ILS Station Evaluation Report, Randolph AFB, TX
(Tracals evaluation rept. (Final) 1 Oct-30 Dec 75)
Raeth, J. N.
Facility Checking Squadron (1866th) (Afcs) Richards-Gebaur AFB Mo
Corp. Source Codes: 408827
Report No.: 75/66N-53
14 Apr 76 176p
Journal Announcement: GRAI7615
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A09/MF A01
This evaluation report presents data collected and analyzed to define the capabilities and limitations of the Randolph TACAN (AN/GRN-20C), dual ILS serving runways 14L (AN/MRN-7A and AN/MRN-8) and 32R (AN/MRN-7 and AN/MRN-8), and associated power systems. Analysis of these data show the configurations to be capable of satisfying the required mission with two exceptions: glide slope roughness **prevents auto pilot** coupled approaches to runway 32R and automatic switchover to secondary power is unreliable for several base traffic **control** and **landing** systems. A course to clearance signal strength ratio problem is documented on both localizers. Recommendations are presented to enhance the day to day operation of each facility. (Author)
?

22/7/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

02446492 INSPEC Abstract Number: B85031403, C85023974
Title: The ADC-1 data acquisition system
Author(s): Ga Cote, R.
Journal: Robotics Age vol.6, no.10 p.27-9
Publication Date: Oct. 1984 Country of Publication: USA
CODEN: ROAGD2 ISSN: 0197-1905
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P); Product Review (R)
Abstract: The ADC-1 data acquisition system from Remote Measurement Systems Inc. is a low-cost, easy-to-operate data acquisition and control system. The ADC-1 allows a computer to gather information from the surrounding environment. It measures a sensor's analog voltage output and converts this to a digital number. The ADC-1 can also be used to control external devices over AC power lines. An **onboard** computer, sensor, and **control** interface, **limits** the need for sophisticated electronic or programming skills to acquire real-world information. The ADC-1 provides 16 analog input channels coupled with a 12-bit analog-to-digital (A/D) converter. Four digital inputs are available for monitoring or counting digital signals. A BSR controller module permits one to remotely control appliances and lamps via signals transmitted over AC wiring to BSR modules. The entire operation is controlled via standard RS-232 connections. (0 Refs)
Subfile: B C

22/7/2 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

1261285 NTIS Accession Number: NTN86-0415
Autopilot Servoactuator With Pressurized Detented Centering: A centering valve allows the use of a mechanical override **in an** autopilot **mode . .**
(NTIS Tech Note)
National Aeronautics and Space Administration, Washington, DC.
Corp. Source Codes: 011249000
Apr 86 1p
Languages: English
Journal Announcement: GRAI8623
FOR ADDITIONAL INFORMATION: Contact: NASA Technology Transfer Div., PO Box 8757 BWI Airport, MD 21240; (301) 621-0100 ext 241. Refer to LAR-13185/TN.
NTIS Prices: Not available NTIS
Country of Publication: United States
This citation summarizes a one-page announcement of technology available for utilization. Current commercial aircraft incorporate autopilot servoactuators on all three flight-control axes to stabilize the aircraft for optimum performance and to reduce pilot fatigue. Electrical signals from **remote** sensors **control** the autopilot servo to maintain the prescribed flight parameters that will result in the most efficient and safe operation of the aircraft. In some aircraft control systems, the design constraints may require the linkages to the autopilot servos to become fixed so that an alternate control system can function by reacting against it as a ground point. One such application would be an aircraft with a fly-by-wire (FBW) control system that is augmented by a mechanical alternate control system.

22/7/3 **(Item 1 from file: 8)**
DIALOG(R)File 8:Ei Compendex(R)

02186821 E.I. Monthly No: EI8704034532
Title: COMPUTERS BOARD EQUIPMENT.
Author: Robison, Rita
Source: Civil Engineering (New York) v 57 n 1 Jan 1987 p 49-51
Publication Year: 1987
CODEN: CIEGAG ISSN: 0009-7853
Language: ENGLISH
Document Type: JA; (Journal Article) Treatment: G; (General Review)
Journal Announcement: 8704
Abstract: The excavator is digging away unattended, controlled from a safe distance. With a 50 lb instrument box, the operator manipulates the boom, arm and bucket via **controls** that mimic **on - board** levers. The engine start, **stop** , speed, bucket clamp and attachments repond to start/stop buttons. A color video monitor provides a clear picture of the work area, and a microphone transmits sounds such as engine rpm or the alarm from the electronic monitoring system. The robot excavator is designed by Deere & Co. to go where human operators shouldn't: onto sites contaminated by toxics or dormant explosives.

22/7/4 **(Item 2 from file: 8)**
DIALOG(R)File 8:Ei Compendex(R)

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Title: MINI-RPV LATERAL AUTOPILOT DESIGN.
Author: Bar-Itzhack, Itzhack Y.; Ferdman, Eryk
Corporate Source: Technion-Isr Inst of Technol, Haifa
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Abstract: The design of a lateral autopilot for a miniature remotely piloted vehicle (RPV) is described. The structure of the autopilot is predetermined, as well as the measured variables. It is shown that, even though aileron alone is used to control the RPV, the system is completely controllable. By use of several indices of performance, the best **autopilot** gains are **determined** by minimizing these indices. The minimization is carried out in the complex plane, and comparison is made with state space methods. It is concluded that, when a single error, such as heading error, is considered, the complex plane minimization procedure is superior. 11 refs.
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